

TREATING THE WATER TO DRINKING WATER QUALITY



UPCOMING DRINKING WATER REGULATIONS

City of Scottsdale Central Arizona Project (CAP) Water Treatment Plant

Water from the Colorado River is treated to drinking water standards at the city's CAP Water Treatment Plant and then delivered to Scottsdale citizens.

- PRE-TREATMENT

The water is treated with chlorine or carbon for unpleasant tastes and odors in a large basin.
- COAGULATION

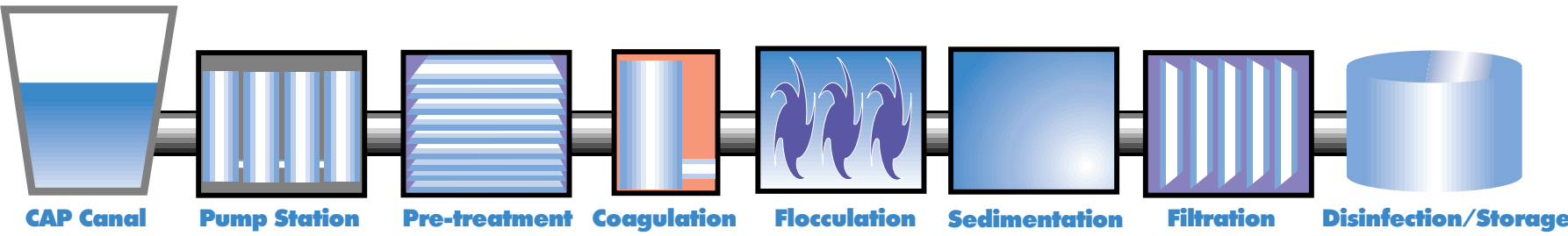
An additive called "alum" is added to draw small particles together.
- FLOCCULATION

Large mixers called flocculators are used to aid the process to form larger and heavier particles.
- SEDIMENTATION

The water is moved to large rectangular basins where the large particles settle to the bottom of the basins and are readily removed.
- FILTRATION

Very small particles that remain in the water are removed by filtering.
- DISINFECTION

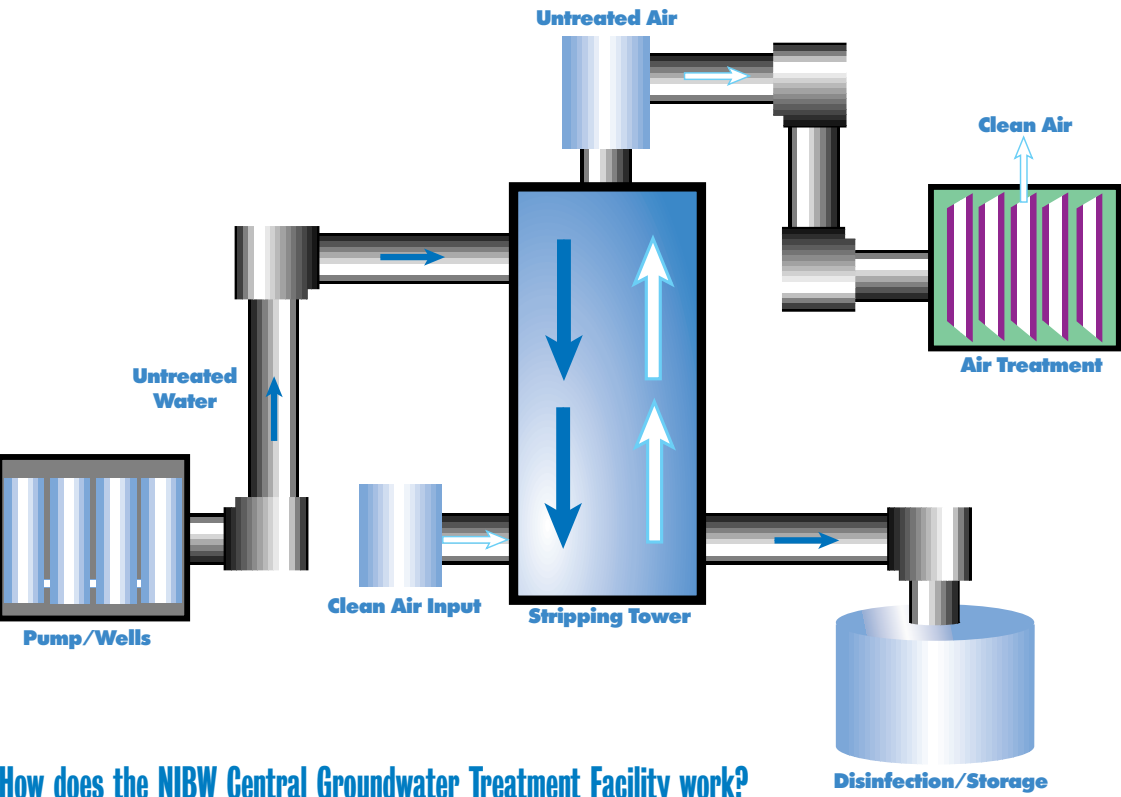
The final step is disinfection with chlorine. Water carrying a slight chlorine residual is distributed to water customers. A chlorine residual is required to ensure adequate disinfection in the distribution pipes.



Central Groundwater Treatment Facility (CGTF)

The North Indian Bend Wash (NIBW) Central Groundwater Treatment Facility treats water pumped from four groundwater wells that contain trichloroethylene (TCE), an industrial chemical. The facility, located at Pima and Thomas roads, was built by private companies deemed potentially responsible for contaminating the groundwater with TCE. The private companies are responsible for the cost of operating and maintaining the facility. The facility pumps groundwater from an area designated by EPA as the NIBW Superfund site. The groundwater is treated to federal and state drinking water standards, with regulatory oversight by EPA, Arizona Department of Environmental Quality and Maricopa County. In 2001, the facility continued to remove TCE from the water to a non-detect level (less than 0.5 part per billion).

For more information on the NIBW Superfund site, please call EPA's message line (800-231-3075). For more information on the NIBW Central Groundwater Treatment Facility, please contact the City of Scottsdale at (480) 312-5650.



How does the NIBW Central Groundwater Treatment Facility work?

- Water pumped from the four wells flows down through three treatment columns.
- The treatment facility uses a process that "strips" the water of contaminants by mixing the water with air. As the water and air mix, the contaminants attach themselves to the air.
- The air used in the treatment process is passed through activated carbon filters to remove the contaminants before the air is released.
- The treated water is then moved to a reservoir for disinfection before it is delivered to the City of Scottsdale drinking water system. The water in the reservoir is combined with other source(s) to meet water demand.

Attention Immuno-Compromised Citizens

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; and some elderly people and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA / Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Arsenic

Arsenic is a naturally occurring mineral commonly found in water due to erosion from rocks and soil. Some people who drink water containing arsenic in excess of the arsenic standard or Maximum Contaminant Level over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Presently the arsenic standard is set at 50 ppb. Recently the EPA announced that it will be lowering the arsenic standard from 50 ppb to 10 ppb. This revised standard will not be effective until January 2006. In preparation for the compliance date the city is researching the best available technologies to effectively remove the naturally occurring arsenic from the city's drinking water wells. Increased costs of arsenic treatment will be primarily funded through water rates.

Radon

Radon is a naturally occurring radioactive gas that you can't see, taste or smell. Breathing elevated levels of radon in indoor air has been linked to lung cancer. Radon is released to the air from the soil and can migrate into a building through the foundation. Radon can also be released into the air from tap water. However, it is estimated that less than two percent of radon in the air comes from the drinking water.

The EPA recently proposed a new regulation for radon in water. Preparing for the upcoming regulation, Scottsdale's Water Resources Department staff began collecting radon samples from wells and treatment plants. This additional monitoring was conducted in 1999 through 2000. Sample results vary depending on the water source, ranging from non-detect to 1,110 picocuries per liter (pCi/L). The state has the option to adopt a program to address the health risks from radon in indoor air with a proposed alternate drinking water standard of 4,000 pCi/L.

If you are concerned about radon in your home or office, test the air in the building. Testing is inexpensive and easy and there are simple ways to fix a radon problem that aren't too costly. For additional information, call EPA's Radon Hotline (800-SOS-RADON).

WHERE TO LEARN MORE ABOUT YOUR DRINKING WATER

City of Scottsdale Water Quality Staff
480-312-8732
480-312-0961 TDD

City of Scottsdale Water Conservation and Operations
(main breaks, etc.)
480-312-5650

City of Scottsdale Water Quality web site
www.ci.scottsdale.az.us/water/quality.asp
Includes present and previous Water Quality Reports and Frequently Asked Questions

United States Environmental Protection Agency's
Safe Drinking Water Hotline
800-426-4791
www.epa.gov/safewater/

Arizona Department of Environmental Quality
602-207-2300
www.adeq.state.az.us/environ/water/index.html

Maricopa County Environmental Services Department
602-506-6666
www.maricopa.gov/envsvc/Wwmd.asp



Tap into Quality
www.tapintoquality.com



2002 WATER QUALITY REPORT

This report provides valuable information about your drinking water and is provided to you in accordance with federal and state regulations. The 2002 Water Quality Report outlines where your drinking water comes from, how it is treated and the results of the testing the city does to ensure your water meets all drinking water requirements. Just like nutritional labels on the food you eat, this report identifies substances found in your water and their respective levels.

Your Drinking Water

In 2001, your drinking water met all federal and state drinking water standards. Scottsdale water is tested for over 100 substances the Environmental Protection Agency (EPA) has determined may be unhealthy to humans if consumed over extended periods of time above the health standards. Health standards are set to detect and eliminate unwanted substances long before they pose a health threat.

To ensure your tap water is safe to drink, the (EPA) issues regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for substances in commercial bottled water.

Sources of drinking water (both tap and bottled) include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive materials, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-416-4791).

Where Your Water Comes From

Your water comes from both groundwater and surface water sources. Throughout the year you may receive water from any of these sources or a combination of water sources. Consumer demand, weather and the time of year are all factors that can influence where your water supply originates.

The city's main surface water supply is from the Colorado River. This water is transported through the Central Arizona Project (CAP) aqueduct to the Scottsdale CAP Water Treatment Plant where it is treated to drinking water standards before being served to customers.

Scottsdale also receives water from the Salt River Project (SRP), which originates from the Verde and Salt Rivers. This water is transported through the many SRP canals that cross the Valley and treated to drinking water standards by the City of Phoenix. Then the water is piped to Scottsdale where it is served to customers.

Besides these surface water sources, Scottsdale water comes from groundwater stored deep below the ground. The water is pumped from the ground through one of the city's 31 wells.



Water Campus

8787 E. Hualapai Drive
Scottsdale, AZ 85255

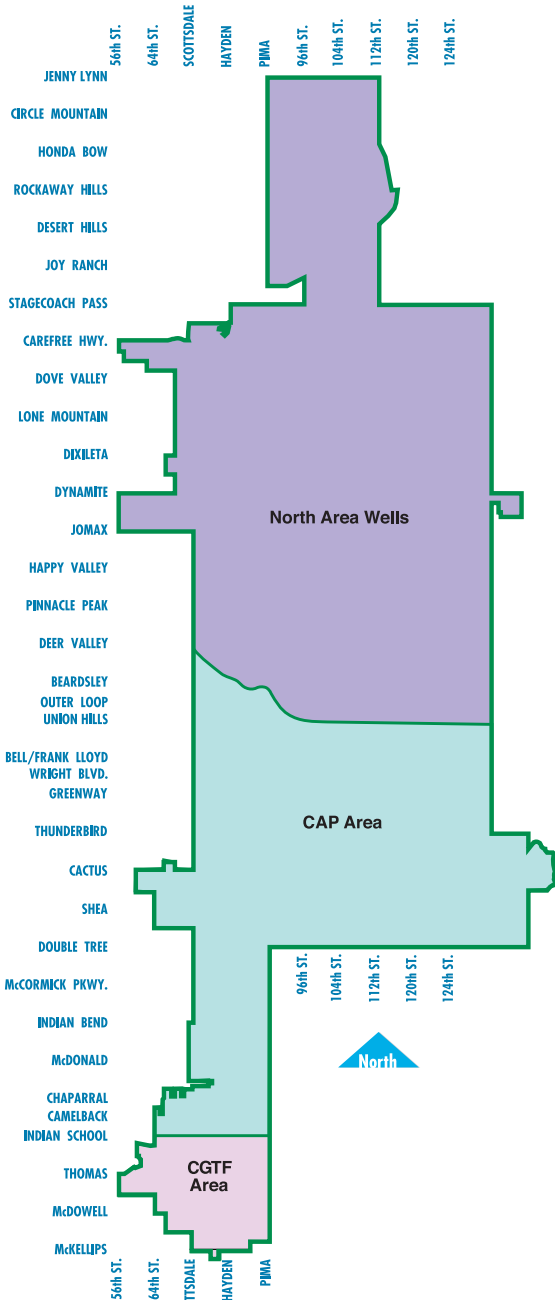
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2001 DRINKING WATER QUALITY RESULTS



The results of Scottsdale's water quality analysis are contained in the following tables. The water service areas are divided into three different zones; CAP Area, Central Groundwater Treatment Facility Area and North Wells Area. Use the color coded map to determine what area you receive your water from and refer to the tables for your water quality results. Scottsdale water is tested for over 100 substances. However, only the substances that are detected in the water are listed in this report. A complete list of all substances the city monitors is available upon request.



Important Definitions

CONTAMINANT
Any physical, chemical, biological or radiological substance or matter in the water.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)
The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MAXIMUM CONTAMINANT LEVEL (MCL)
The highest level of a contaminant allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

TREATMENT TECHNIQUE (TT)
A required process intended to reduce the level of a contaminant in drinking water.

ACTION LEVEL (AL)
The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which a water system must follow.

PART PER MILLION (PPM) / PART PER BILLION (PPB)
These units describe the levels of detected substances. One part per million can be described as one penny in a million nickels. One part per billion is one penny in a billion nickels.

Contaminants that may be present in source water include:

- Microbial Contaminants, which include viruses, bacteria or parasites (such as Cryptosporidium or Giardia), which may come from agricultural or livestock operations and wildlife;
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming;
- Pesticides and herbicides, that may come from a variety of sources such as agriculture, storm water runoff and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic compounds, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; and,
- Radiochemical contaminants, which occur naturally or result from oil and gas production and mining activities.

North Well Area supplied by groundwater wells
CAP Area supplied by CAP Water Treatment Plant and groundwater wells
CGTF Area supplied by CGTF and water purchased from City of Phoenix.

Public Notification

The City of Scottsdale is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. At one well serving north Scottsdale, monitoring was not completed during the third quarter 2000 for radiochemicals* and during the first quarter 2001 for a group of compounds called volatile organic compounds (VOC)**. Therefore we cannot verify the levels of those specific contaminants at the well during that time. The appropriate regulatory agencies for drinking water were informed of this missed monitoring event. As required, the city has monitored and continues to monitor this well. Testing conducted prior to and after the missed monitoring event confirmed compliance with the federal drinking water standards.

* Radiochemicals are a naturally occurring substance found in the soil.

** VOCs which are commonly used in industrial and manufacturing processes, include 1,1,2-trichloroethane, tetrachloroethene, chlorobenzene, ethylbenzene, styrene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, xylenes, vinyl chloride, 1,1-dichloroethene, methylene chloride, trans-1,2-dichloroethene, cis-1,2-dichloroethene, 1,1,1-trichloroethane, carbon tetrachloride, benzene, 1,2-dichloroethane, trichloroethene, 1,2-dichloropropane, and toluene.

2001 Detected Results

2001 Inorganics								
SUBSTANCE	UNIT	MCL	MCLG	CAP AREA RANGE	CGTF AREA RANGE	NORTH WELL AREA RANGE	LIKELY SOURCE IN DRINKING WATER	
Arsenic	ppb	50	NA	ND - 37	6 - 9	7 - 26	Naturally occurring in our soil.	
Barium	ppm	2	2	0.002 - 0.095	0.032 - 0.040	0.003 - 0.289	Naturally occurring in our soil.	
Chromium	ppb	100	100	ND - 80	ND - 8.8	ND - 27	Naturally occurring in our soil.	
Fluoride	ppm	4	4	0.3 - 1.6	0.4 - 0.5	0.5 - 1.5	Naturally occurring in our soil.	
Nitrate (as N)**	ppm	10	10	ND - 5	ND - 6	ND - 5	Run off from fertilizer use; Leaching from septic tanks.	

2001 Organics								
SUBSTANCE	UNIT	MCL	MCLG	CAP AREA AVERAGE	CGTF AREA AVERAGE	NORTH WELL AREA AVERAGE	LIKELY SOURCE IN DRINKING WATER	
Bromodichloromethane	ppb	NA	NA	2.2	4.4	ND - 9.9	Byproduct of drinking water chlorination	
Bromoform	ppb	NA	NA	0.9	4.5	ND - 9.1	Byproduct of drinking water chlorination	
Chloroform	ppb	NA	NA	2.3	3.4	ND - 9.3	Byproduct of drinking water chlorination	
Dibromochloromethane	ppb	NA	NA	2.1	6.0	ND - 12.0	Byproduct of drinking water chlorination	

2001 Radiochemicals								
SUBSTANCE	UNIT	MCL	MCLG	CAP AREA RANGE	CGTF AREA RANGE	NORTH WELL AREA RANGE	LIKELY SOURCE IN DRINKING WATER	
Gross Alpha	pCi/L	15	0	0.6 - 1.0	*3.4 - 8.3	3.3 - 4.5	Naturally occurring in our soil.	
Radium	pCi/L	5	0	NA	*0.6 - 1.2	NA	Naturally occurring in our soil.	

* Not all substances are required to be monitored every year. The city collected samples for these substances in 2000.

** Nitrate is an inorganic substance that is monitored because of run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm is a health risk for infants of less than six months of age. In 2001, the highest nitrate level detected in Scottsdale water was 6 ppm. High nitrate levels above 10 ppm in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider.

2001 Detected Secondary Standards

Secondary inorganic substances do not have an MCL and are measured voluntarily because these substances generally relate to the taste, odor or appearance of drinking water. These inorganic substances are found naturally in the soil.

2001 Secondary Inorganics								
SUBSTANCE	UNIT	MCL	MCLG	CAP AREA RANGE	CGTF AREA RANGE	NORTH WELL AREA RANGE		
Alkalinity	ppm	NA	NA	112 - 192	178 - 226	168 - 244		
Calcium	ppm	NA	NA	2.2 - 71.7	50.2 - 62.2	35.4 - 50.0		
Chloride	ppm	NA	NA	17 - 202	26 - 274	22 - 52		
Copper	ppm	NA	NA	ND - 0.015	ND - 0.017	ND - 0.028		
Hardness, Total	ppm grains/gallon	NA	NA	5.4 - 282	253 - 387	147 - 203		
Iron	ppm	NA	NA	0.3 - 16.5	14.8 - 22.6	8.6 - 11.9		
Magnesium	ppm	NA	NA	ND - 0.849	ND - 0.056	ND - 0.204		
pH	Std. Unit	NA	NA	0.011 - 29.0	31.0 - 56.3	13.0 - 18.9		
Sodium	ppm	NA	NA	7.21 - 9.02	7.46 - 8.41	7.32 - 7.87		
Sulfate	ppm	NA	NA	37 - 146	51 - 153	37 - 59		
Temperature	oC	NA	NA	9 - 236	48 - 96	13 - 20		
	oF			15.5 - 37.8	15.3 - 40.5	24.2 - 36.8		
				59.5 - 100	59.5 - 104.9	75.6 - 98.2		
Total Dissolved Solids	ppm	NA	NA	ND - 0.849	ND - 0.056	ND - 0.204		
Zinc	ppm	NA	NA	32 - 580	210 - 810	290 - 350		
				ND - 0.020	ND - 0.017	ND - 0.032		

Key ND = non-detectable (the substance was analyzed but not detected) NA = non-applicable

2001 Results of Samples Collected in the Distribution System

Microbial, Disinfection Residual and Disinfection Byproduct samples are collected throughout the city at dedicated sampling stations. These distribution system samples are representative of water delivered to homes and businesses.

Drinking water is treated with chlorine to ensure adequate microbial disinfection. Every month throughout the city over 120 samples are collected to ensure adequate disinfection and verify the absence of microbes within the distribution system pipes. Scottsdale's goal is to have a chlorine residual between 0.8 and 1.2 ppm in all of the monthly samples. When chlorine residuals are outside the preferred range, the city makes necessary adjustments to return the residual to the preferred range.

Disinfectant Byproducts are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. The disinfection process is carefully controlled so that disinfection is effective, while keeping levels of disinfection byproducts as low as possible.

2001 Microbial Monitoring				
SUBSTANCE	MCL	MCLG	ENTIRE DISTRIBUTION SYSTEM	LIKELY SOURCE IN DRINKING WATER
Total Coliform	Presence in no more than 5% of monthly samples	0	Highest monthly percentage of positive Total Coliform samples: 1.5%	Naturally present in the environment

2001 Disinfectant Byproduct Monitoring								
SUBSTANCE	UNIT	MCL	MCLG	CAP AREA HIGHEST ANNUAL AVERAGE	CGTF AREA HIGHEST ANNUAL AVERAGE	NORTH WELL AREA HIGHEST ANNUAL AVERAGE	LIKELY SOURCE IN DRINKING WATER	
Total Trihalomethanes	ppb	100	0	74	33	14	Byproduct of drinking water chlorination	
Haloacetic Acids	ppb	NA	NA	34	11	4	Byproduct of drinking water chlorination	

2001 Turbidity Results after Treatment at the CAP Water Treatment Plant

Turbidity is a measure of clarity in the water and is reported as Nephelometric Turbidity Units (NTU). It is caused by suspended matter such as organic and inorganic matter, silt, algae or tiny microorganisms. Turbidity is a good indicator of the effectiveness of the water treatment. A treatment technique standard applies instead of an MCL.

SUBSTANCE	TREATMENT TECHNIQUE	MCLG	HIGHEST MEASUREMENT	LOWEST MONTHLY PERCENTAGE	LIKELY SOURCE IN DRINKING WATER
Turbidity	No turbidity measurement can be above 5 NTU at any time. At least 95% of turbidity measurements of any month must be less than or equal to 0.5 NTU.	NA	0.18	100 % of monthly samples met treatment technique requirements	Soil runoff

Results of Lead and Copper Monitoring in Residential Households

Lead and copper are used to make household plumbing fixtures and pipes. Lead and copper may leach from faucets or plumbing components into water when the water stands in pipes for several hours or more. Leaching may also occur in copper pipes joined with lead-based solder. Because the water in your pipes can pick up these metals, installation of lead solder, pipes and fittings was banned in 1986. The lead and copper levels reported are from water faucets inside 53 Scottsdale homes that were built before the lead ban.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. Lead levels at your home may be higher than other homes as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels you may want to have your water tested. If you have elevated levels of lead in your home run your faucet when the water hasn't been used for more than six hours and use only cold water for consumption. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

1999 Lead and Copper Results					
SUBSTANCE	UNITS	ACTION LEVEL (AL)	MCLG	AMOUNT DETECTED	LIKELY SOURCES IN DRINKING WATER
Lead	ppb	90% of homes tested must have lead levels less than 15 ppb	0	90% of the homes tested had lead levels less than 5 ppb	Corrosion of household plumbing
Lead - from city water sources	ppb	NA	NA	ND	Naturally occurring in soil
Copper	ppm	90% of homes tested must have copper levels less than 1.3 ppm	1.3	90% of the homes tested had copper levels less than 0.365 ppm	Corrosion of household plumbing
Copper - from city water sources	ppm	NA	NA	ND-0.028	Naturally occurring in soil